

INFLUENCE OF HYPOKINESIA AND A DIET
COMPOSED OF HOMOGENIZED PRODUCTS ON THE
FUNCTIONAL STATE OF THE HUMAN ORGANISM

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16. Abstract Four human subjects 21-29 years old were kept in horizontal position for 7 days in limited isolation. Two received a special homogenized diet. Two received a normal diet; calorie content and chemical composition were identical. Effects of isolation and diet are noted: decrease in respiration exchange in all subjects; cardiovascular changes, orthostatic instability, transitory gastrointestinal tract effects, weight loss, change in mineral volume, auditory analyzer changes, etc.					
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INFLUENCE OF HYPOKINESIA AND A DIET COMPOSED OF HOMOGENIZED PRODUCTS ON THE FUNCTIONAL STATE OF THE HUMAN ORGANISM

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1. A group of four specially selected healthy subjects ^{*}/162 aged 21 to 29 were kept in a horizontal position in bed for seven days under limited isolation conditions. Two members of the group received a special diet composed of homogenized products; two others received a diet prepared by normal culinary methods, with the same caloric content (2200 kilo calories) and chemical composition. Water was given ad libitum.

2. During the experiment, all of the subjects experienced a decrease in the level of respiratory exchange, and in the vital capacity of the lungs; the subjects on the special diet showed a more pronounced increase in oxygen consumption and the level of basal metabolism as well.

3. Changes in the cardiovascular system appeared on the electrocardiograms (a decrease in the voltage of the R and T peaks, bradycardia, rotation of the axis to the right) in all of the subjects and persisted for twelve days following the experiment.

Study of hemodynamics using the method of N. N. Savitskiy /163 indicated that the subjects underwent a decrease in the velocity of the pulse wave along the arteries of the muscular type and a change in the peripheral resistance and minute volume of blood. The method of rhinopneumometry also revealed disturbances of the intranasal blood circulation. These changes in vascular

tone were more pronounced in the group of subjects with the special diet.

4. Following the experiment, all of the subjects exhibited orthostatic instability, and two individuals who had received the special diet developed collapse ((during the 3rd and 23rd minutes of the test) in carrying out active orthostatic testing involving for 30 minutes.

5. Pronounced functional changes of a transitory nature were observed, involving the gastrointestinal tract (decreased gastric secretion following the test in the group with the special diet, changes in the protein, carbohydrate and cholesterol volume, and disturbances of the bilirubin-excretory function of the liver in all subjects).

6. Following the experiment, all of the subjects experienced weight losses up to 3.350 kg, although the functional disturbances affecting the kidneys took the form of decreased diuresis, a drop in creatine clearance and reduced water excretion in a test involving a water load.

7. Changes in mineral volume during the experiment took the form of an increase in potassium and calcium content in the blood plasma in all subjects and a drop in chlorides in the daily urine at the end of the experiment in the group of subjects on the special diet.

8. Audiometry revealed neurodynamic disturbances of the functional state of the auditory analyzer (asymmetry and increased differential thresholds of intensity of sound and altitude).

9. Changes were observed in the level of the dark adaptation curve. The increase in photosensitivity at the 60th minute was observed to a greater extent in those subjects who received a normal diet and to a lesser degree in those on the special diet. An analysis of the nictograms characterizing the initial period of dark adaptation failed to reveal any significant changes.